

## Overview

*While serving as a major transit point for oil and LNG from the Persian Gulf to Europe, Egypt is the largest non-OPEC oil producer in Africa and the second largest dry natural gas producer on the continent.*

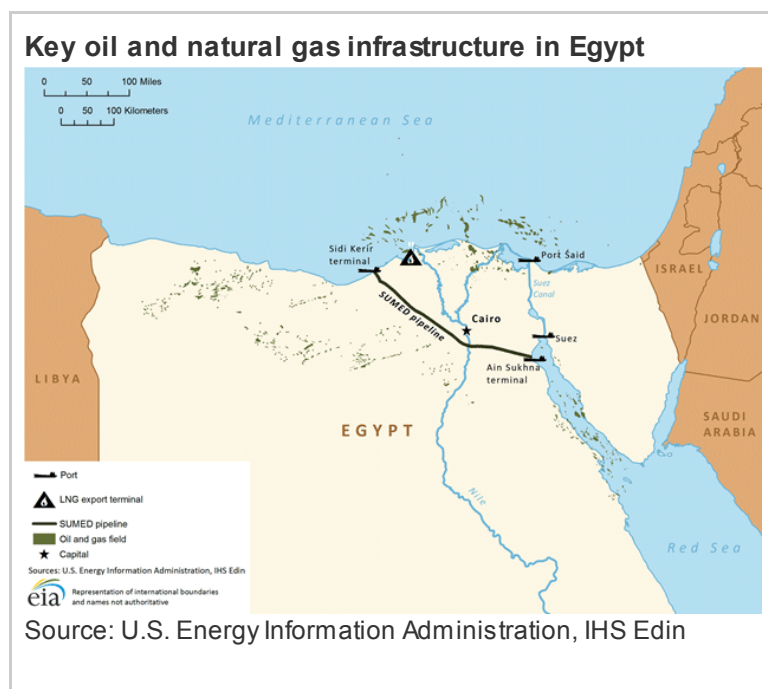
Egypt is the largest oil producer in Africa that is not a member of the Organization of the Petroleum Exporting Countries (OPEC), and the second largest natural gas producer on the continent, following Algeria. Egypt plays a vital role in international energy markets through the operation of the Suez Canal and Suez-Mediterranean (SUMED) Pipeline. The Suez Canal is an important transit route for oil and liquefied natural gas (LNG) shipments traveling northbound from the Persian Gulf to Europe and North America and southbound shipments from North Africa and countries along the Mediterranean Sea to Asia. The SUMED Pipeline is the only alternative route nearby to transport crude oil from the Red Sea to the Mediterranean if ships were unable to navigate through the Suez Canal. Fees collected from operation of these two transit points are significant sources of revenue for the Egyptian government.

In Africa, Egypt has the third largest population, after Nigeria and Ethiopia, and the second highest gross domestic production (GDP), in purchasing power parity at current international prices, after South Africa, according to the latest 2011 statistics from the World Bank. The International Monetary Fund (IMF) indicates that after the Egyptian revolution in 2011 the country experienced capital outflows and a sharp drop in tourism revenue and foreign direct investment. Annual GDP growth in Egypt dropped to 1.8 percent in 2011 from 5.1 percent in 2010.

Despite this slower growth, oil and gas production and operations largely have been unaffected, although some foreign companies have withdrawn nonessential foreign staff as a precautionary measure because of uncertainty in the country. In addition, shipments of oil and LNG through the Suez Canal have been unaffected, as the Egyptian army continues to guard the Canal.

The most visible effect of the 2011 revolution and the recent unrest on Egypt's energy sector has been a series of attacks on the Arab Gas Pipeline, which prior to the revolution had transported natural gas to Jordan and Israel. Gas exports to both countries were significantly reduced in 2011. In 2012, natural gas exports to Israel were halted, according to the Arab Oil and Gas Journal. In addition, growing domestic demand for oil and gas amid stagnant production has led to energy shortages, contributing to continued protests and

sporadic unrest in the country.



## Total primary energy consumption

Almost all of Egypt's 3.6 quadrillion British thermal units (Btu) of energy consumption in 2010 was met by oil (41 percent) and natural gas (46 percent), with the remainder from renewable energy sources (traditional biomass, hydro, wind, and solar) and coal. Oil's share of the energy consumption mix is mostly used in the transportation sector, but with the increased use of compressed natural gas (CNG) in vehicles, the share of natural gas in the transportation sector is likely to grow.

Egypt's total primary energy consumption grew by an annual average of 5 percent from 2000 to 2010, most of which was oil and natural gas. Egypt is the largest oil and natural gas consumer in Africa, accounting for almost a quarter of total oil consumption in Africa in 2012 and almost half of total dry natural gas consumption in 2011. The rapid growth of oil and gas consumption has been driven by increased industrial output, economic growth, energy-intensive gas and oil extraction projects, population growth, and an increase in private and commercial vehicle sales.

Fuel subsidies have contributed to oil consumption growth. Oil producers in Egypt are required to sell their crude oil to the Egyptian General Petroleum Corporation (EGPC) at a price below the world market price, and EGPC then sells the crude to its refineries on the global market, according to the [2013 African Economic Outlook](#). Because Egypt's diesel consumption is twice the level of gasoline consumption, the country must import diesel to satisfy local demand. According to Foreign Reports, EGPC sells diesel locally at retail for 59 cents per gallon, but it pays about \$2.80 per gallon wholesale for imports by the tanker-load.

Egypt's FY 2012/2013 budget proposed a \$12 billion reduction in petroleum products subsidies and the government has taken steps toward energy subsidy reform, but subsidy reduction is a politically sensitive issue that has proven difficult to fully implement. In November 2012, the subsidy on high-grade 95-octane gasoline was eliminated, but savings may be negligible because consumers could shift to the subsidized 92-octane

gasoline, according to the 2013 African Economic Outlook. According to the IMF, in early 2013 the government increased fuel prices for the industrial sector and electricity tariffs as part of the first phase of planned energy subsidy reforms.

---

## Oil

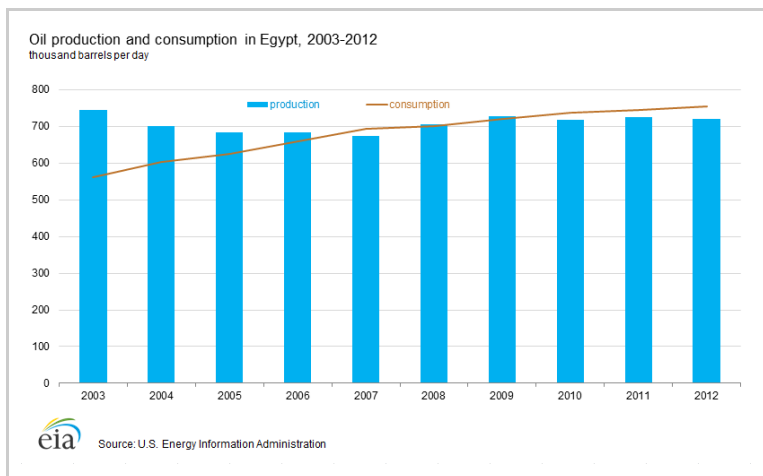
*One of Egypt's challenges is to satisfy increasing domestic demand for oil amid falling domestic production. In recent years, oil output has experienced moderate increases from new production at smaller fields, but oil production is expected to decline steadily.*

According to the *Oil & Gas Journal's* (OGJ) January 1, 2013 estimate, Egypt's proven crude oil reserves are 4.4 billion barrels, an increase from the 2010 reserve estimate of 3.7 billion barrels, with new oil discoveries boosting oil reserves in recent years. According to the Arab Oil and Gas Journal, several new oil discoveries have been made every year since 2008, with 16 in 2011, 16 in 2010, 11 in 2009, and 17 in 2008. Many of these oil discoveries were the result of exploration conducted by the U.S.-based Apache in Egypt's Western Desert.

Egypt's oil production comes from the Gulf of Suez, Nile Delta, Western Desert, Eastern Desert, Sinai, and the Mediterranean Sea. Most of Egypt's production is derived from relatively small fields that are connected to larger regional production systems. Overall production is in decline, particularly from the older fields in the Gulf of Suez and Nile Delta. However, declines have been partially offset by small new finds, particularly in the Western Desert and offshore area. In addition, the use of enhanced oil recovery (EOR) techniques at mature fields has eased production declines.

After Egypt's production peak of more than 900,000 bbl/d in the mid-1990s, output began to decline as oil fields matured. However, natural gas liquids (NGL) output has increased over the past decade as a result of expanding natural gas production and has offset some of the declines in other liquids production, such as crude oil. In 2012, Egypt's total oil production averaged around 720,000 bbl/d, of which approximately 555,000 bbl/d was crude oil including lease condensate, almost 170,000 bbl/d was NGL, with refinery processing loss accounting for the difference.

One of Egypt's challenges is to satisfy increasing domestic demand for oil amid falling domestic production. Total oil consumption grew by an annual average of 3 percent over that past decade to 755,000 bbl/d in 2012. Egypt's oil consumption has outpaced production since 2010.



## Sector organization

The EGPC is the state entity charged with managing upstream activities including infrastructure, licensing, and production. EGPC owns and operates much of the country's refining capacity. International oil companies (IOCs) play a significant role in Egypt's upstream sector on a production-sharing basis with EGPC. In addition to the EGPC, other important regulatory companies in the energy sector are the Egyptian Mineral Resource Authority (EMRA), Egyptian Natural Gas Holding Company (EGAS), the Egyptian Petrochemicals Holding Company (ECHEM), and Ganoub El Wadi Petroleum Holding Company (GANOPE).

EGPC holds shares in operations through joint ventures (JVs) with foreign companies, according to Business Monitor International Ltd. (BMI), while IOCs dominate Egypt's upstream oil sector. BP, Eni, BG, and Apache are the major oil and gas players in Egypt, with the first three primarily invested offshore and Apache in the onshore Western Desert, according to IHS CERA. There are also several small and mid-sized companies participating in Egypt's oil and gas exploration and production.

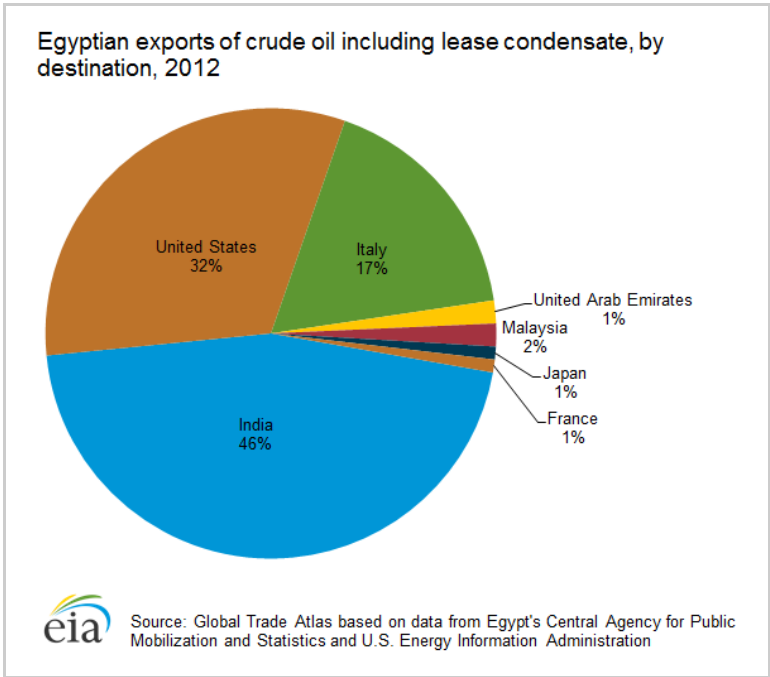
## Crude oil exports

Egypt exported around 100,000 bbl/d of crude oil including lease condensate in 2012. Most of Egypt's exports were sent to India (46 percent), the United States (32 percent), and Italy (17 percent) in 2012. EIA data show that the United States imported 31,000 bbl/d of crude oil from Egypt in 2012; an increase compared to previous years as U.S. crude imports from Egypt averaged less than 6,000 bbl/d in the past five years.

Egypt's main oil grades are Suez, Belayim, and Western Desert. The Suez Blend comes from declining offshore fields in the Gulf of Suez, operated by The Gulf of Suez Petroleum Co. (Gupco), a JV between BP and EGPC, according to the Energy Intelligence Group. The Belayim Blend is sourced from aging oil fields in the Gulf of Suez that are operated by the Belayim Petroleum Co. (Petrobel), a JV between Eni and EGPC. Most of the Suez and Belayim Blend crudes are refined domestically, with only a small volume of these grades destined for exports. Both blends are usually sold at a discount to the Brent contract because of their relatively high sulfur content.

The Western Desert Blend is a light, relatively sweet grade crude with a high wax content that is sourced from oil fields in the Western Desert, and in recent years output has increased because of small new finds and the application of EOR techniques to fields in

the Western Desert region. The main producer in the area is Khalda Petroleum Co., a JV between Apache and EGPC. Agiba (JV between Eni and EGPC) and Bapetco (JV between Shell and EGPC) also hold assets that feed the Western Desert Blend, according to the Energy Intelligence Group. Similar to the other two blends, much of the Western Desert Blend is refined domestically, and the remainder is sold to international markets.



### Refined oil products

*Egypt has the largest refinery capacity in Africa and holds 23 percent of the continent's total refinery capacity. Egypt's nine refineries mostly run domestically produced crude oil, and refined products are largely sold to local markets.*

Egypt has the largest refinery capacity in Africa, with a total crude distillation capacity of 726, 250 bbl/d or 23 percent of Africa's total refinery capacity. The nine refineries mostly run domestically produced crude oil and are operated by subsidiaries of EGPC. The last increase in refinery capacity occurred in 2001 when the 100,000-bbl/d Sidi Kerir refinery came online, according to the Arab Oil and Gas Journal.

Egypt's refinery capacity is planned to increase in 2015 when a new 96,000-bbl/d refinery next to the Mostorod refinery in Cairo begins operations. Construction on the facility began in 2012 and it is being developed by the [Egyptian Refining Corporation \(ERC\)](#), a public-private partnership financed by Citadel Capitol and its co-investors, along with EGPC. According to ERC, petroleum products refined at this facility will be sold to EGPC under a 25-year offtake agreement at international prices. A second refinery project that has made much less progress is a proposed 300,000-bbl/d refinery. EGPC signed a memorandum of understanding with a Chinese consortium in May 2010 to develop this facility, according to the Arab Oil and Gas Journal.

**Table 1. Egypt crude oil refineries**

Refinery operator	Location	Nameplate capacity (barrels per day)
-------------------	----------	---

El-Nasr Petroleum Co.	El Suez	146,300
Cairo Petroleum Refining Co.	Mostorod (Cairo)	145,000
Alexandria Petroleum Co.	Alexandria (El-Mex)	100,000
Middle East Oil Refinery	Alexandria (Sidi Kerir)	100,000
Ameriya Petroleum Refining Co.	Alexandria	78,000
Suez Petroleum Processing Co.	El Suez	66,400
Assiut Petroleum Refining Co.	Assiut	47,000
Cairo Petroleum Refining Co.	Tanta	35,000
El-Nasr Petroleum Co.	Wadi-Feran	8,550
<b>Total</b>		<b>726,250</b>

Source: Oil & Gas Journal

## Natural gas

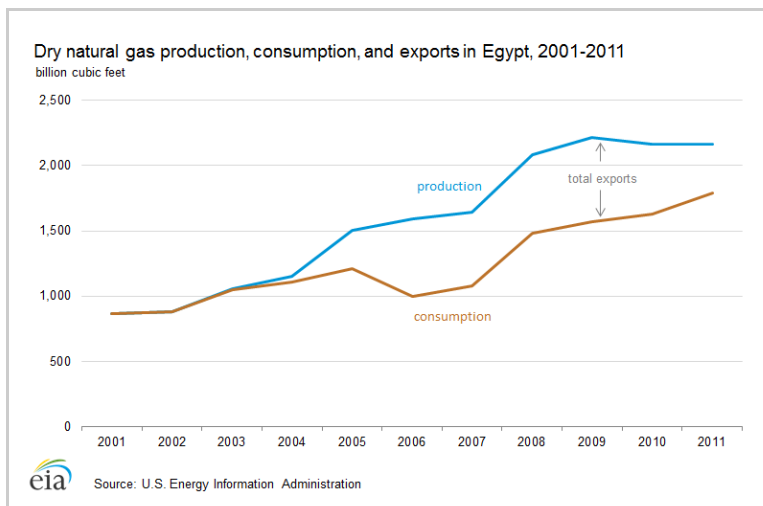
*Natural gas exports have declined since 2009 because of increasing Egyptian consumption and flat production. Promising natural gas discoveries may revive production in the next few years as new fields come onstream.*

According to OGJ estimates as of January 1, 2013, Egypt's proven natural gas reserves registered at around 77Tcf, an increase from the 2010 estimate of 58.5 Tcf and the third highest in Africa, after Nigeria and Algeria. New discoveries in the deepwater Mediterranean Sea and Nile Delta, along with some finds in the Western Desert, have led to the increase in proven reserves. There were 16 natural gas discoveries in 2009, 10 in 2010, and 7 in 2011, according to the Arab Oil and Gas Journal. The majority of Egypt's natural gas reserves and production is located in the Mediterranean Sea and Nile Delta.

Egypt's natural gas production is used to satisfy rising domestic demand, exports through the Arab Gas Pipeline, and LNG exports. In 2011, Egypt produced roughly 2.2 Tcf of dry natural gas, of which 1.8 Tcf was domestically consumed and 0.4 Tcf was exported. Egypt supplies natural gas mostly to European and Asian markets, although exports are competing with rising domestic demand, particularly in Egypt's power generation sector.

Egypt's natural gas consumption has increased by an annual average of 11 percent from 2001 to 2011. Natural gas production rapidly increased for most of that time period as well, but after 2009 natural gas production began to fall because of a decline in output from offshore gas fields. Egypt's natural gas exports have also fallen. The government may start to import natural gas for the first time, to satisfy rising domestic demand and continue to export natural gas to global markets.

Much of the natural gas consumed in Egypt is used to fuel electric power plants. The government is encouraging households, businesses, and the industrial sector to consider natural gas as a substitute for petroleum and coal. In January 2008, the World Bank approved loans for the Natural Gas Connections Project, which aims to switch consumption of liquefied petroleum gas (LPG) to natural gas through investment in new connections and to further expand natural gas use in densely populated, low income areas. The share of natural gas consumed in the transportation sector also has been rising since the development of compressed natural gas (CNG) infrastructure and vehicles.



## Sector organization

The Egyptian Natural Gas Holding Company (EGAS) oversees the development, production, and marketing of natural gas. EGAS is also responsible for organizing international exploration bid rounds and awarding gas exploration licenses. EGAS and/or EGPC participate in JVs with IOCs to develop and operate gas fields. The Egyptian Natural Gas Company (GASCO) operates many of the gas processing plants.

Foreign companies operating in Egypt's gas sector must direct all or a portion of their current production to the domestic market, and the government has demanded that new discoveries be earmarked for the domestic market. Major foreign players in Egypt's upstream natural gas sector include Eni, BG Group, BP, Shell, and Apache. BG Group produces about 40 percent of Egypt's natural gas production, mainly from the offshore Nile Delta, according to IHS CERA. The vast majority of BG's output is used to supply the domestic market. Another major producer, BP, is planning to increase output through its recent discoveries in the Gulf of Suez and the Mediterranean Sea.

## Natural gas exports

*Egypt exports natural gas via pipeline and in the form of liquefied natural gas. Pipeline natural gas exports have been substantially cut because of sabotage attacks on the Arab Gas Pipeline. Egypt's LNG exports have also declined as exports compete with the growing domestic demand. Most of Egypt's LNG is exported to Asian and European markets.*

Dry natural gas exports, which began in 2003, had been rising rapidly, with the completion of the first stage of the Arab Gas Pipeline (AGP) linking Egypt to Jordan and the startup of LNG production in 2004. However, after 2006 exports began to level off, and in 2012 natural gas exports fell to 256 Bcf, less than half of the peak export volume of 647 Bcf in 2009. In 2011 and 2012, gas exports through the AGP were disrupted by repeated sabotage attacks and the amounts sent to Jordan and Israel were substantially curtailed. Growing domestic demand, stagnant domestic production, and attacks and technical problems at the AGP have all contributed to reduced Egyptian exports of pipeline gas and LNG after 2009.

### Pipeline exports

The AGP originates in Egypt and connects to Jordan, Syria, and Lebanon. In 2008, a pipeline was built from the starting point in al-Arish in Egypt to Ashkelon in Israel and runs



underwater. The AGP had been sabotaged on over a dozen occasions between 2011 and 2012, which resulted in gas supply disruptions to recipient countries. Israel and Jordan were most affected by supply cut-offs because they were most dependent on Egypt's gas. In April 2012, Egyptian state-owned oil and gas companies announced that they were terminating their agreement to supply gas to Israel. Total exports via the AGP dropped to 19 Bcf in 2012, of which the majority was sent to Jordan, with a smaller amount delivered to Israel before exports were terminated. This level is a substantial decrease from the gas volumes transported prior to the revolution, which totaled 193 Bcf in 2010.

### Liquefied natural gas (LNG)

Egypt has two LNG plants that include a total of three LNG trains, with combined capacity of around 610 Bcf per year (or 12.7 million tons per year). The Spanish-Egyptian Gas Company (Segas) LNG plant in Damietta started production in late-2004 and has one train with a capacity of 264 Bcf per year. There were plans to add a second train, but the project was delayed after the government enacted a two-year moratorium on new gas export deals in 2008. The moratorium was put in place to remedy growing local demand for natural gas. The second 346-Bcf-per-year LNG plant was developed by Egyptian LNG (ELNG) and started production in 2005. It has two trains and is located in Idku near Alexandria.

Egypt's LNG exports have been cut in half over the past five years, from 496 Bcf in 2008 to 237 Bcf in 2012, according to BP Statistical Review. LNG exports are expected to decline further in 2013 because increased domestic demand has diverted additional natural gas supply to the local market. The Segas LNG plant in Damietta was recently forced to shut down operations due to the lack of natural gas to feed the facility. The company operating the facility, Union Fenosa Gas, is working with the Egyptian government to restore gas flows to Segas, according to the Energy Intelligence Group. The Idku plant, which is fed gas from the BP-operated West Delta Deep Marine (WDDM) offshore concession, is running below capacity. If the government diverts a greater portion from WDDM to the local market, this could compromise operations at Idku as well.

In 2012, most of Egypt's LNG was exported to Asia (53 percent), with Japan being the primary destination, followed by South Korea and India, with smaller volumes sent to China and Taiwan, according to FACTS Global Energy and BP 2013 Statistical Review. Europe was the second-largest regional destination and absorbed 39 percent of Egypt's total LNG exports in 2012. France, Spain, Turkey, Portugal, and Italy were the recipients in that region.

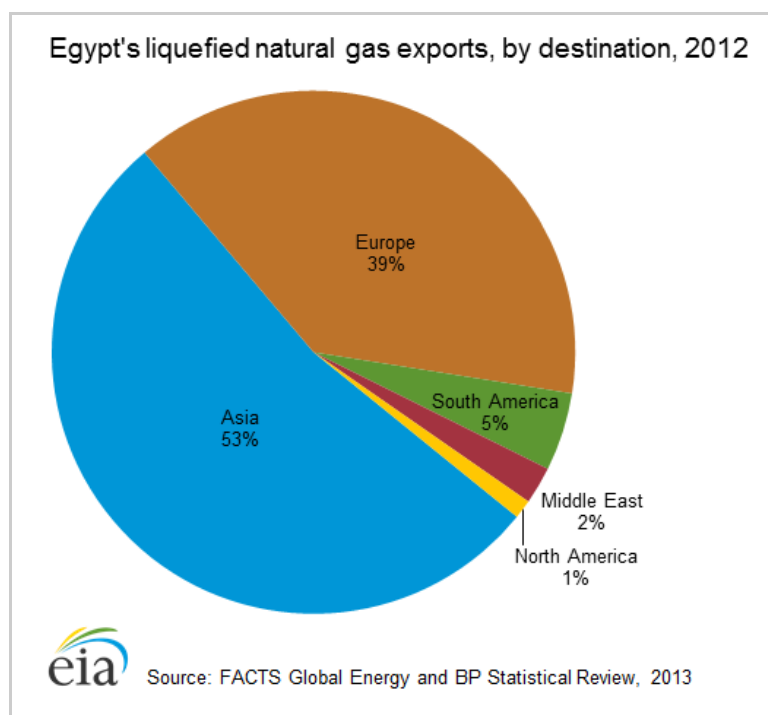
Europe previously had been the leading export destination for Egypt's LNG, but European LNG imports from Egypt dropped by about a quarter in 2012 compared with the previous year. This drop reflects the overall decrease of total European LNG imports in 2012 and increased competition for LNG on the global market. Egypt's LNG accounted for 4 percent of Europe's total LNG imports in 2012, according to FACTS Global Energy estimates.

**Table 2. Egypt's pipeline and liquefied natural gas exports (billion cubic feet)**

	2008	2009	2010	2011	2012
Pipeline exports	101	194	193	64	19
LNG exports	496	452	343	303	237
<b>Total exports</b>	<b>597</b>	<b>647</b>	<b>535</b>	<b>367</b>	<b>256</b>



Source: BP Statistical Review, 2009-2013; 2012 pipeline export is from Cedigaz



## Suez Canal/SUMED Pipeline

*The Suez Canal and SUMED Pipeline are strategic routes for Persian Gulf oil and gas shipments to Europe and North America. Closure of the Suez Canal and SUMED Pipeline would add an estimated 2,700 miles of transit from Saudi Arabia to the United States around the Cape of Good Hope via tanker.*

### Suez Canal

The Suez Canal is located in Egypt and connects the Red Sea and Gulf of Suez with the Mediterranean Sea. In 2012, oil (both crude oil and refined products) and LNG accounted for 24 and 5 percent of total Suez cargoes, measured by cargo tonnage, respectively. The Canal is unable to handle Ultra Large Crude Carriers (ULCC) and fully laden Very Large Crude Carriers (VLCC) class crude oil tankers. The Suezmax was the largest ship capable of navigating through the Canal until 2010 when the Suez Canal Authority extended the depth to 66 feet to allow over 60 percent of all tankers to use the Canal, according to the [Suez Canal Authority](#).

**Table 3. Tanker type, tonnage, and capacity**

Tanker type	Deadweight tons	Approximate capacity (barrels)
Panamax	60,000 - 100,000	440,000 - 730,000
Aframax	80,000 - 120,000	850,000 - 880,000
Suezmax	120,000 - 200,000	880,000 - 1,500,000
VLCC	200,000 - 320,000	1,500,000 - 2,350,000

VLCC	200,000 - 320,000	1,000,000 - 2,000,000
ULCC	320,000+	2,350,000+

Source: Clarksons

## SUMED Pipeline

The 200-mile long SUMED Pipeline, or Suez-Mediterranean Pipeline, provides an alternative to the Suez Canal for vessels and cargos too large to transit through the Canal (fully laden VLCCs and larger). The crude oil flows through two parallel pipelines that are 42-inches in diameter, with a total pipeline capacity of around 2.35 million bbl/d. Oil flows north through Egypt and is carried from the Ain Sukhna terminal along the Red Sea coast to its end point at the Sidi Kerir terminal on the Mediterranean. SUMED is owned by the Arab Petroleum Pipeline Co., a joint venture between the Egyptian General Petroleum Corporation (EGPC), Saudi Aramco, Abu Dhabi's National Oil Company (ADNOC), and Kuwaiti companies.

The SUMED Pipeline is the only alternative route nearby to transport crude oil from the Red Sea to the Mediterranean if ships were unable to navigate through the Suez Canal. Closure of the Suez Canal and the SUMED Pipeline would necessitate diverting oil tankers around the southern tip of Africa, the Cape of Good Hope, adding approximately 2,700 miles to transit from Saudi Arabia to the United States, increasing both costs and shipping time, according to the U.S. Department of Transportation. According to the International Energy Agency (IEA), shipping around Africa would add 15 days of transit to Europe and 8-10 days to the United States.

Fully laden VLCCs transiting toward the Suez Canal also use the SUMED Pipeline for lightering. Lightering occurs when a vessel needs to reduce its weight and draft by offloading cargo in order to enter a restrictive waterway, such as a canal. The Suez Canal is not deep enough for a fully laden VLCC and, therefore, a portion of the crude is offloaded at the SUMED Pipeline at the Ain Sukhna terminal. The now partially laden VLCC goes through the Suez Canal and picks up the portion of its crude at the other end of the pipeline at Sidi Kerir terminal.

## Crude oil and refined product flows

*The revolution in Egypt that started in 2011 did not have any noticeable effect on oil transit flows through the Suez Canal. In 2012, about 2.97 million bbl/d of total oil transited in both directions. This is the highest amount ever shipped through the Suez Canal and made up about 7 percent of total seaborne traded oil.*

In 2012, about 2.97 million bbl/d of total oil (crude oil and refined products) transited the Suez Canal in both directions. This is the highest amount ever shipped through the Canal and made up about 7 percent of total seaborne traded oil. The majority of the oil was sent northbound (1.66 million bbl/d) toward European and North American markets, and the remainder was sent southbound (1.32 million bbl/d) mainly toward Asian markets. Southbound oil flows increased by around 540,000 bbl/d in 2012 compared to the previous year mainly because of the restart of oil production in Libya in 2012 following the civil war. Southbound oil flows from Libya through Suez quadrupled in 2012.

Egypt's 2011 revolution did not have any noticeable effect on oil transit flows through the Suez Canal. Over the past few years, oil flows through the Canal have increased and have recovered from previous lower levels caused by the global economic downturn. Total traffic through the canal fell in 2009 and total oil flows dropped to 1.84 million bbl/d, its lowest level in recent years. The decrease in oil flows during that time period reflects the collapse in world oil market demand that began in the fourth quarter of 2008, followed by OPEC production cuts (primarily from the Persian Gulf), which caused a sharp fall in regional oil trade starting in early 2009.

In 2012, around 1.54 million bbl/d of crude oil was transported through the SUMED pipeline. Although SUMED crude flows decreased in 2012 over the previous year, total crude oil transited northbound from Suez and SUMED combined increased to 2.44 million bbl/d in 2012 from 2.20 million bbl/d in 2011.

**Table 4. Suez Canal and SUMED Pipeline hydrocarbon annual flows  
(million barrels per day)**

	2008	2009	2010	2011	2012
<b>Suez northbound flows</b>					
Crude oil	0.94	0.31	0.42	0.54	0.90
Refined products	0.68	0.68	0.74	0.86	0.76
<b>Total oil</b>	<b>1.63</b>	<b>0.99</b>	<b>1.16</b>	<b>1.39</b>	<b>1.66</b>
LNG (Tcf per year)	0.31	0.79	1.48	1.82	1.24
<b>Suez southbound flows</b>					
Crude Oil	0.21	0.27	0.31	0.21	0.48
Refined Products	0.61	0.58	0.52	0.57	0.84
<b>Total Oil</b>	<b>0.82</b>	<b>0.85</b>	<b>0.83</b>	<b>0.78</b>	<b>1.32</b>
LNG (Tcf per year)	0.28	0.05	0.11	0.24	0.27
<b>Suez total</b>					
Crude Oil	1.15	0.59	0.73	0.75	1.37
Refined Products	1.29	1.26	1.26	1.42	1.60
<b>Total Oil</b>	<b>2.45</b>	<b>1.84</b>	<b>1.99</b>	<b>2.17</b>	<b>2.97</b>
LNG (Tcf per year)	0.59	0.84	1.59	2.06	1.50
<b>Sumed pipeline flows</b>					
<b>Crude Oil</b>	<b>2.12</b>	<b>1.18</b>	<b>1.15</b>	<b>1.66</b>	<b>1.54</b>

*Note: Totals may not exactly match corresponding values as a result of independent rounding.*

*Source: Suez Canal Authority (with EIA conversions) and EIA analysis based on APEX Tanker Data*

## Liquefied natural gas (LNG)

*LNG flows through the Suez Canal in both directions were 1.5 trillion cubic feet in 2012, accounting for around 13 percent of total LNG traded worldwide.*

LNG flows through the Suez Canal in both directions were 1.5 trillion cubic feet in 2012, accounting for around 13 percent of total LNG traded worldwide. Southbound LNG transit mostly originates in Algeria and Egypt and is largely destined for Asian markets, while northbound transit is mostly from Qatar, largely destined for European markets. The rapid growth in LNG flows through the Suez Canal represents the startup of multiple LNG trains in Qatar in 2009-2010. However, total LNG flows through the Suez Canal in both directions fell to 1.5 Tcf in 2012, down from its peak of 2.06 Tcf in 2011. The year-over-year decrease reflects the fall in northbound LNG flows and is consistent with LNG import data for the United States and Europe, which show that total LNG imports into both areas decreased, particularly from Qatar. U.S. LNG imports from Qatar fell by around 63 percent in 2012 compared with the previous year. The changes reflect growing domestic supply in the United States, a decrease in LNG demand in some European countries, and strong competition for LNG in the global market. In addition, northbound LNG flows were also curtailed because of less LNG exports from Yemen because of sabotage attacks on a gas pipeline. As a result, total Suez LNG flows as a percentage of total LNG traded worldwide fell to 13 percent in 2012, compared with 18 percent in 2012.

---

## Electricity

*As a result of Egypt's growing domestic energy demand, the government plans to increase the amount of power generated from renewable sources, particularly wind and solar, and is fostering nuclear power development.*

The Egyptian household electrification rate in 2009 was approximately 99.6 percent, according to the latest estimates from the International Energy Agency (IEA). Although the country has one of the highest electrification rates in Africa, approximately 300,000 people still lack access to electricity, mainly in rural areas.

Egypt's total electricity net generation was around 138.7 billion KWh in 2010: 124.3 billion KWh (90 percent) of which was from fossil-fueled electric, 12.9 billion KWh from hydro, and 1.5 billion KWh from wind. Electricity consumption has grown by an average of 7 percent annually between 2000 and 2010. Most of Egypt's power demand growth comes from the industrial sector. Ageing infrastructure and rising demand have led to intermittent blackouts.

Egyptian electricity consumption is increasing much faster than capacity expansions, and the government is planning to invest heavily in the power sector over the next decade, while also seeking financing from external sources. The private sector, international organizations, and renewable energy funds such as the World Bank's Clean Technology Fund have all provided investment in the sector. Under existing plans, Egypt hopes to produce 12-20 percent of its electricity from renewable energy by 2020 while also developing a nuclear power industry, according to IHS CERA.

---

## Hydroelectric power

According to Egypt's New and Renewable Energy Authority (NREA), hydropower is Egypt's third largest energy source after natural gas and oil. In 2010, Egypt generated around 12.9 billion KWh of hydroelectric power, almost all of which came from the Aswan High Dam and the Aswan Reservoir Dams. However, much of the Nile's hydropower potential has already been exploited, and NREA has actively pursued other types of renewable projects, primarily

solar and wind power, to diversify the country's energy mix.

---

## Other Renewable Sources

### Solar

Egypt's first solar-thermal power plant is located in Kuraymat, just south of Cairo and has the capacity to generate 140 megawatt (MW) of solar-thermal energy. The plant was connected to the national grid in June 2011, according to the National Renewable Energy Laboratory (NREL). The plant uses concentrated solar power (CSP) with back-up natural gas-fired generators. The World Bank and the Japan International Cooperation Agency helped to finance the construction of the solar-thermal plant.

### Wind

According to NREA, some of the world's best wind power resources are located in Egypt, especially in the areas of the Gulf of Suez and West and East Nile Valley. In 2010, Egypt generated 1.5 billion KWh of power from wind, mainly from the Zafarana and Hurghada wind farms. Egypt's largest non-hydro renewable project is the Zafarana wind farm located on the Gulf of Suez West Coast, along the Red Sea coastline. The farm houses a number of wind projects that were developed in several stages and financed in cooperation with development banks from Germany, Denmark, Spain, and Japan. The government plans to expand wind capacity over the coming years as part of a plan to increase wind's share of electricity generation to 12 percent.

---

## Nuclear

Egypt is also working on developing nuclear power as an energy source. It has a relatively small nuclear research reactor at Inshas in the Nile Delta that began operation in 1997. Egypt plans to build a 1,000-MW nuclear power station at El Dabaa, which is open to international participation and expected to become operational by 2019. Bidding for the development of this plant was supposed to have started in early 2011; however, controversy over land ownership has stalled construction plans indefinitely.

---

## International grid connections

Work has been completed on the interconnection of Egypt's electric transmission grid with other countries in the region. Egypt completed a link to Jordan in 1998, which was expanded to connect Syria, Lebanon, and Turkey. Egypt had previously built a connection to Libya's national grid in 1998.

The Gulf Cooperation Council (GCC) Power Grid project plans to link Egypt to the GCC through Saudi Arabia. The link is expected to be complete by 2015, but this may be delayed because of political and technical difficulties, according to IHS CERA. This project will indirectly expand each country's electricity capacity by pulling from each other's supplies at different peak hours. Longer-term plans call for broader interconnections that would include North Africa, the Middle East, and Europe.

---

## Notes

- Data presented in the text are the most recent available as of July 31, 2013.

- Data are EIA estimates unless otherwise noted.
- 

## Sources

- Africa Oil and Gas Monitor (Newsbase Afroil)
- APEX Tanker Data
- Arab Oil and Gas Journal
- BP Statistical Review, 2009 - 2013
- Business Monitor International
- Cedigaz Insights
- Clarksons
- Daily News Egypt
- Egyptian New and Renewable Energy Authority (NREA)
- Energy Intelligence Group
- Eurasia Group
- FACTS Global Energy
- Global Trade Atlas
- IHS CERA
- IHS Edin
- IHS World Markets Energy
- International Energy Agency (IEA)
- International Monetary Fund (IMF)
- Middle East Economic Survey (MEES)
- Oil and Gas Journal
- OPEC Annual Statistical Bulletin
- Petroleum Economist
- Petroleum Intelligence Weekly
- PFC Energy
- Reuters
- Rystad
- Suez Canal Authority
- World Bank